

PART I

PERMIT NO. GW1810162

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
GROUNDWATER DISCHARGE PERMIT**

In compliance with the provisions of Michigan's Natural Resources and Environmental Protection Act, 1994 P.A. 451, as amended (NREPA), Part 31, Water Resources Protection, and Part 41, Sewerage Systems,

Kennecott Eagle Minerals Company
1004 Harbor Hills Drive, Suite 103
Marquette, Michigan 49855

is authorized to discharge 504,000 gallons per day, 184,000,000 gallons per year, of process wastewater from the Eagle Project Mine Wastewater Treatment System located at:

Michigamme Township, Marquette County
Section 12, T50N, R29W of Michigamme Township, Marquette County

to the groundwater of the State of Michigan in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

Rule Authorization:	2218
Wastewater Type:	Mine Contact Water
Wastewater Treatment Method:	Metals precipitation/sedimentation, filtration, reverse osmosis, microfiltration, ion exchange, evaporation/crystallization
Wastewater Disposal Method:	Rapid Infiltration Basins

The issuance of this permit does not authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other Michigan Department of Environmental Quality (Department) permits, or approvals from other units of government as may be required by law.

Unless specified otherwise, all contact with the Department required by this permit shall be made to the Upper Peninsula District Supervisor of the Water Bureau. The Upper Peninsula District Office is located at DEQ-Water Bureau, 420 5th Street, Gwinn, Michigan 49841. Telephone: 906-346-8300. Fax: 906-346-4480.

In accordance with Section 324.3122 of the NREPA, the permittee shall make payment of an annual permit fee to the Department for each December 15 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by March 1 for notices mailed by January 15. The fee is due no later than 45 days after receiving the notice for notices mailed after January 15.

Any person who is aggrieved by this permit may file a sworn petition with the Office of Administrative Hearings of the Department, setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Department may reject any petition filed more than 60 days after issuance as being untimely.

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This permit is based on an original application submitted on February 22, 2006, as amended through December 14, 2007.

This permit takes effect on [January 1, 2008](#). The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules.

This permit and the authorization to discharge shall expire at midnight, [January 1, 2013](#). In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application which contains such information, forms, and fees as are required by the Department by [July 5, 2012](#).

Issued [December 14, 2007](#).

A handwritten signature in black ink, appearing to read "James R. Janiczek", is written over a light gray rectangular background.

James R. Janiczek, Chief
Groundwater Permits Unit
Permits Section, Water Bureau

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1. Initial Effluent Limitations

During the period beginning on the effective date of this permit and lasting until at least 90-days after start-up of the wastewater treatment system and the wastewater treatment system has demonstrated compliance in meeting initial permit effluent limitations, the permittee is authorized to discharge a maximum of 504,000 gallons per day, 184,000,000 gallons per year, of Mine Contact Water from the monitoring points listed below to the groundwater in the NW ¼ of the NE ¼, Section 12, T50N, R29W, Michigamme Township, Marquette County, Michigan. The discharge shall be limited and monitored by the permittee as specified below.

<u>Parameter</u>	<u>Monthly Ave Limit</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
INFLUENT: Monitoring Point IF-1					
Flow		Report	GPD	Daily	Report Total
EFFLUENT: Monitoring Point EQ-1					
Flow		504,000	GPD	Daily	Report Total
Flow		184,000,000	GPY	Annually	Calculation
Biochemical Oxygen Demand (BOD ₅)		10	mg/l	Daily	Grab
Dissolved Oxygen		Report	mg/l	Daily	Grab
Ammonia Nitrogen		Report	mg/l	Daily	Grab
Nitrate Nitrogen		Report	mg/l	Daily	Grab
Nitrite Nitrogen		Report	mg/l	Daily	Grab
pH (Minimum)		6.5	S.U.	Continuous	Grab
pH (Maximum)		9.0	S.U.	Continuous	Grab
Total Phosphorus		Report	mg/l	Daily	Grab
Total Chloride		Report	mg/l	Daily	Grab
Total Sodium		Report	mg/l	Daily	Grab
Specific Conductance		Report*	umhos/cm	Continuous	Measurement
Total Aluminum		Report	mg/l	Daily	Grab
Total Antimony**		Report	ug/l	Daily	Grab
Total Arsenic**	6.0	10	ug/l	Daily	Grab
Total Barium**		Report	ug/l	Daily	Grab
Total Beryllium**		Report	ug/l	Daily	Grab
Total Boron***		250	ug/l	Daily	Grab
Total Cadmium**	3.0	5	ug/l	Daily	Grab
Total Chromium**		Report	ug/l	Daily	Grab
Total Cobalt**		Report	ug/l	Daily	Grab
Total Copper**	10	21	ug/l	Daily	Grab
Total Fluoride		Report	ug/l	Daily	Grab
Total Iron		Report	ug/l	Daily	Grab
Total Lead**		Report	ug/l	Daily	Grab
Total Lithium**		Report	ug/l	Daily	Grab
Total Manganese**		Report	ug/l	Daily	Grab

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<u>Parameter</u>	<u>Monthly Ave Limit</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Total Mercury	0.0021***	Report	ug/l	Daily	Grab
Total Molybdenum**		Report	ug/l	Daily	Grab
Total Nickel***		Report	ug/l	Daily	Grab
Total Potassium		Report	ug/l	Daily	Grab
Total Selenium**	5	25	ug/l	Daily	Grab
Total Silver***	0.4	17	ug/l	Daily	Grab
Total Strontium**		Report	ug/l	Daily	Grab
Total Sulfate		Report	ug/l	Daily	Grab
Total Thallium**		Report	ug/l	Daily	Grab
Total Vanadium**		Report	ug/l	Daily	Grab
Total Zinc**		Report	ug/l	Daily	Grab

* **Specific Conductance**

- a) The permittee must monitor specific conductance continuously, record the daily average and submit the results to the Department along with the monthly Compliance Monitoring Reports. The permittee must calibrate the specific conductance meter weekly, and keep a log on site of the calibration results. The log must contain the calibration results, date of calibration and the person that performed the calibration. The log shall be made immediately available to the Department upon request.
- b) On or before any discharge to the rapid infiltration beds, the permittee shall correlate results from the continuous specific conductance testing to an effluent quality that meets the Effluent Limits in Part 1, Section 1 of this permit and Expected Effluent Quality described in Attachment I. The permittee shall submit written verification of the correlation, including all related effluent quality and specific conductance data, meter sensitivity and error, and the range of specific conductance values whereby the treatment system will meet the Expected Effluent Quality. The authorized range of specific conductance values from this testing will be referred to as the "Allowable Operational Range" for specific conductance.

** **Method Quantification Level**

- a) The appropriate Method Quantification Levels and Methodology are listed in Attachment II unless a higher level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination. Upon approval of the Department, the permittee may use alternate analytical methods.

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*** **Mercury**

- a) Compliance with the Total Mercury Effluent Limit (TMEL) shall be determined as a 12-month rolling average. The 12-month rolling average shall be determined by adding the present monthly average result to the preceding 11 monthly average results then dividing the sum by 12. The monthly average is the sum of the results of all data obtained in a given month divided by the total number of samples taken. If the 12-month rolling average for any month is less than the TMEL the permittee will be considered to be in compliance for total mercury for that month.
- b) The analytical protocol for total mercury testing requirements shall be in accordance with EPA Method 1631, Revision E, "Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry". The quantification level for total mercury shall be 0.5 ng/l, unless a higher level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination.
- c) The use of clean technique sampling procedures is strongly recommended. Guidance for clean technique sampling is contained in: EPA Method 1669, *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels (Sampling Guidance)*, EPA-821-R96-001, July 1996. Information and data documenting the permittee's sampling and analytical protocols and data acceptability shall be submitted to the Department upon request.
- d) The permittee may request a reduction in the monitoring frequency if the data indicate that the 12-month rolling average mercury concentration is less than the TMEL. This request shall contain an explanation as to why the reduced monitoring is appropriate and shall be submitted to the Department. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency for total mercury indicated in Section 1 of this permit. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

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<u>Parameter</u>	<u>Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Monitoring Point LA-1				
Application Rate	10	gallons/sq ft	Daily	Calculation

- a) **Sampling Locations**
Influent flow, effluent flow, effluent quality and land application rate shall be measured in accordance with the approved sampling plan. The location and method of collecting and analyzing effluent quality and soil samples shall be in accordance with the approved sampling plan. The Department may approve alternate sampling locations which are demonstrated by the permittee to be representative.

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2. Final Effluent Limitations

During the period beginning at least 90 days after start-up of the wastewater treatment system, and the wastewater treatment system has demonstrated compliance in meeting initial permit effluent limitations; the permittee is authorized to discharge a maximum of 504,000 gallons per day, 184,000,000 gallons per year, of Mine Contact Water from the monitoring points listed below to the groundwater in the NW ¼ of the NE ¼, Section 12, T50N, R29W, Michigamme Township, Marquette County, Michigan. The discharge shall be limited and monitored by the permittee as specified below.

<u>Parameter</u>	<u>Monthly Ave Limit</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis*</u>	<u>Sample Type</u>
INFLUENT: Monitoring Point IF-1					
Flow		Report	GPD	Daily	Report Total
EFFLUENT: Monitoring Point EQ-1					
Flow		504,000	GPD	Daily	Report Total
Flow		184,000,000	GPY	Annually	Calculation
Biochemical Oxygen Demand (BOD ₅)		10	mg/l	Weekly	24 hr composite
Dissolved Oxygen		Report	mg/l	Monthly	24 hr composite
Ammonia Nitrogen		Report	mg/l	Monthly	24 hr composite
Nitrate Nitrogen		Report	mg/l	Monthly	24 hr composite
Nitrite Nitrogen		Report	mg/l	Monthly	24 hr composite
pH (Minimum)		6.5	S.U	Continuous	Grab
pH (Maximum)		9.0	S.U	Continuous	Grab
Total Phosphorus		Report	mg/l	Monthly	24 hr composite
Total Chloride		Report	mg/l	Monthly	24 hr composite
Total Sodium		Report	mg/l	Monthly	24 hr composite
Specific Conductance		Report**	umhos/cm	Continuous	Measurement
Total Aluminum		Report	mg/l	Monthly	24 hr composite
Total Antimony***		Report	ug/l	Monthly	24 hr composite
Total Arsenic***	6.0	10	ug/l	Weekly	24 hr composite
Total Barium***		Report	ug/l	Monthly	24 hr composite
Total Beryllium***		Report	ug/l	Monthly	24 hr composite
Total Boron***		285	ug/l	Weekly	24 hr composite
Total Cadmium***	3.0	5	ug/l	Weekly	24 hr composite
Total Chromium***		Report	ug/l	Monthly	24 hr composite
Total Cobalt***		Report	ug/l	Monthly	24 hr composite
Total Copper***	10	21	ug/l	Weekly	24 hr composite
Total Fluoride		Report	ug/l	Monthly	24 hr composite
Total Iron		Report	ug/l	Monthly	24 hr composite
Total Lead***		Report	ug/l	Monthly	24 hr composite
Total Lithium***		Report	ug/l	Monthly	24 hr composite
Total Manganese***		Report	ug/l	Monthly	24 hr composite
Total Mercury	0.0021****	Report	ug/l	Weekly	Grab
Total Molybdenum***		Report	ug/l	Monthly	24 hr composite

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<u>Parameter</u>	<u>Monthly Ave Limit</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Total Nickel***		Report	ug/l	Monthly	24 hr composite
Total Potassium		Report	ug/l	Monthly	24 hr composite
Total Selenium***	5	25	ug/l	Weekly	24 hr composite
Total Silver***	0.4	17	ug/l	Weekly	24 hr composite
Total Strontium***		Report	ug/l	Monthly	24 hr composite
Total Sulfate		Report	ug/l	Monthly	24 hr composite
Total Thallium***		Report	ug/l	Monthly	24 hr composite
Total Vanadium***		Report	ug/l	Monthly	24 hr composite
Total Zinc***		Report	ug/l	Monthly	24 hr composite

* **Reduction in Monitoring Frequency**

- a) After the submittal of six (6) months of data, the permittee may request, in writing, Department approval of a reduction in monitoring frequency for parameters other than flow, pH, specific conductance and mercury. This request shall contain an explanation as to why the reduced monitoring is appropriate. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency indicated in Part I, Section 1 of this permit. The monitoring frequency for parameters other than mercury shall not be reduced to less than monthly. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

** **Specific Conductance**

- a) The permittee must monitor specific conductance continuously, record the daily average and submit the results to the Department along with the monthly Compliance Monitoring Reports. The permittee must calibrate the specific conductance meter weekly, and keep an on site log of the calibration results. The log must contain the calibration results, date of calibration and the person that performed the calibration. The log shall be made immediately available to the Department upon request.
- b) On or before any discharge to the rapid infiltration beds, the permittee shall correlate results from the continuous specific conductance testing to an effluent quality that meets the Effluent Limits in Part 1, Section 1 of this permit and Expected Effluent Quality described in Attachment I. The permittee shall submit written verification of the correlation, including all related effluent quality and specific conductance data, meter sensitivity and error, and the range of specific conductance values whereby the treatment system will meet the Expected Effluent Quality. The authorized range of specific conductance values from this testing will be referred to as the "Allowable Operational Range" for specific conductance.
- c) If specific conductance levels fall outside the Allowable Operational Range, the permittee must notify the department within 24 hours, and within 7 days submit a report indicating the source of the results and steps taken to bring the specific conductance back within the Allowable Operational Range. The permittee must also collect effluent quality samples at the frequency and for the parameters listed in Part I, Section 1 of this permit until they demonstrate that the effluent quality is in compliance with the limitations described in Part I, Section 2 of this permit. If sample results indicate a specific permit

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limit has been exceeded or the expected effluent quality is detected at concentrations greater than five times the Expected Effluent Quality listed in Attachment I, the permittee must also include in the written notification the steps taken to bring the treatment system back into compliance with this permit. Once the permittee has demonstrated compliance with this permit, the sampling frequency will revert to that described in Part I, Section 2 of this permit.

***** Method Quantification Level**

- a) The appropriate Method Quantification Levels and Methodology are listed in Attachment II unless a higher level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination. Upon approval of the Department, the permittee may use alternate analytical methods.

****** Mercury**

- a) Compliance with the Total Mercury Effluent Limit (TMEL) shall be determined as a 12-month rolling average. The 12-month rolling average shall be determined by adding the present monthly average result to the preceding 11 monthly average results then dividing the sum by 12. The monthly average is the sum of the results of all data obtained in a given month divided by the total number of samples taken. If the 12-month rolling average for any month is less than the TMEL the permittee will be considered to be in compliance for total mercury for that month.
- b) The analytical protocol for total mercury testing requirements shall be in accordance with EPA Method 1631, Revision E, "Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry". The quantification level for total mercury shall be 0.5 ng/l, unless a higher level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination.
- c) The use of clean technique sampling procedures is strongly recommended. Guidance for clean technique sampling is contained in: EPA Method 1669, *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels (Sampling Guidance)*, EPA-821-R96-001, July 1996. Information and data documenting the permittee's sampling and analytical protocols and data acceptability shall be submitted to the Department upon request.
- d) The permittee may request a reduction in the monitoring frequency if the data indicate that the 12-month rolling average mercury concentration is less than the TMEL. This request shall contain an explanation as to why the reduced monitoring is appropriate and shall be submitted to the Department. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency for total mercury indicated in Section 1 of this permit. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

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<u>Parameter</u>	<u>Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Monitoring Point LA-1 Application Rate	10	gallons/sq ft	Daily	Calculation

a) Sampling Locations

Influent flow, effluent flow, effluent quality and land application rate shall be measured in accordance with the approved sampling plan. The location and method of collecting and analyzing effluent quality and soil samples shall be in accordance with the approved sampling plan. The Department may approve alternate sampling locations which are demonstrated by the permittee to be representative.

3. Groundwater Monitoring and Limitations

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee shall sample the groundwater from the **hydraulically upgradient and side gradient groundwater monitor wells** QAL026A, QAL026D, QAL029A, QAL029D, QAL053A, QAL055A and QAL056A as described below:

<u>Parameter</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Static Water Elevation	Report	USGS-Ft	Quarterly	Measured
Bicarbonate	Report	mg/l	Quarterly	Grab
Dissolved Oxygen	Report	mg/l	Quarterly	Grab
Ammonia Nitrogen	Report	mg/l	Quarterly	Grab
Nitrate Nitrogen	report	ug/l	Quarterly	Grab
Nitrite Nitrogen	report	ug/l	Quarterly	Grab
pH	Report	S.U.	Quarterly	Grab
Total Phosphorus	Report	mg/l	Quarterly	Grab
Specific Conductance	Report	umhos/cm	Quarterly	Grab
Sulfate	Report	mg/l	Quarterly	Grab
Chloride	Report	mg/l	Quarterly	Grab
Sodium	Report	mg/l	Quarterly	Grab
Antimony	Report	ug/l	Quarterly	Grab
Arsenic	Report	ug/l	Quarterly	Grab
Barium	Report	ug/l	Quarterly	Grab
Beryllium	Report	ug/l	Quarterly	Grab
Boron	Report	ug/l	Quarterly	Grab
Cadmium	Report	ug/l	Quarterly	Grab
Calcium	Report	mg/l	Quarterly	Grab
Chromium	Report	ug/l	Quarterly	Grab
Cobalt	Report	ug/l	Quarterly	Grab
Copper	Report	ug/l	Quarterly	Grab
Iron	Report	mg/l	Quarterly	Grab
Lead	Report	ug/l	Quarterly	Grab
Lithium	Report	ug/l	Quarterly	Grab

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<u>Parameter</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Magnesium	Report	mg/l	Quarterly	Grab
Manganese	Report	mg/l	Quarterly	Grab
Mercury	Report	ug/l	Quarterly	Grab
Molybdenum	Report	ug/l	Quarterly	Grab
Nickel	Report	ug/l	Quarterly	Grab
Potassium	Report	mg/l	Quarterly	Grab
Selenium	Report	ug/l	Quarterly	Grab
Silver	Report	ug/l	Quarterly	Grab
Strontium	Report	ug/l	Quarterly	Grab
Thallium	Report	ug/l	Quarterly	Grab
Vanadium	Report	ug/l	Quarterly	Grab
Zinc	Report	ug/l	Quarterly	Grab

a) **Sampling Locations**

Quarterly groundwater sampling shall be conducted during the months of February, May, August and November. Groundwater samples shall be collected and analyzed from each of the specified monitoring wells in accordance with the methods approved by the Department in the Sampling and Analysis Plan. The Department may approve or require alternate sampling locations which are demonstrated to be representative.

4. Groundwater Monitoring and Limitations

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee shall sample the groundwater from **hydraulically downgradient groundwater monitor wells**. The discharge of treated wastewater shall not cause the groundwater in monitor wells QAL008A, QAL008D, QAL050A, QAL051A, QAL051D, QAL052A, QAL057A, and QAL057D to exceed the limitations below.

<u>Parameter</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Static Water Elevation	Report	USGS-Ft	Quarterly	Measured
Bicarbonate	Report	mg/l	Quarterly	Grab
Dissolved Oxygen	Report	mg/l	Quarterly	Grab
Ammonia Nitrogen	10.0	mg/l	Quarterly	Grab
Nitrate Nitrogen	10.0	mg/l	Quarterly	Grab
Nitrite Nitrogen	Report	mg/l	Quarterly	Grab
pH (Minimum)	6.5	S.U.	Quarterly	Grab
pH (Maximum)	9.0	S.U.	Quarterly	Grab
Total Phosphorus	Report	mg/l	Quarterly	Grab
Specific Conductance	Report	umhos/cm	Quarterly	Grab
Sulfate	250	mg/l	Quarterly	Grab
Chloride	250	mg/l	Quarterly	Grab
Sodium	120	mg/l	Quarterly	Grab
Antimony	5.0	ug/l	Quarterly	Grab
Arsenic	6.0	ug/l	Quarterly	Grab

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<u>Parameter</u>	<u>Maximum Daily Limit</u>	<u>Units</u>	<u>Frequency of Analysis</u>	<u>Sample Type</u>
Barium	1000	ug/l	Quarterly	Grab
Beryllium	3	ug/l	Quarterly	Grab
Boron	285	ug/l	Quarterly	Grab
Cadmium	3.0	ug/l	Quarterly	Grab
Calcium	Report	mg/l	Quarterly	Grab
Chromium	52	ug/l	Quarterly	Grab
Cobalt	23	ug/l	Quarterly	Grab
Copper	10	ug/l	Quarterly	Grab
Iron	Report	mg/l	Quarterly	Grab
Lead	3.0	ug/l	Quarterly	Grab
Lithium	88	ug/l	Quarterly	Grab
Magnesium	Report	mg/l	Quarterly	Grab
Manganese	50	ug/l	Quarterly	Grab
Mercury	Report	ug/l	Quarterly	Grab
Molybdenum	22	ug/l	Quarterly	Grab
Nickel	57	ug/l	Quarterly	Grab
Potassium	Report	mg/l	Quarterly	Grab
Selenium	5.0	ug/l	Quarterly	Grab
Silver	0.4	ug/l	Quarterly	Grab
Strontium	2300	ug/l	Quarterly	Grab
Thallium	1.0	ug/l	Quarterly	Grab
Vanadium	2.2	ug/l	Quarterly	Grab
Zinc	1200	ug/l	Quarterly	Grab

a) Sampling Locations

Quarterly groundwater sampling shall be conducted during the months of February, May, August and November. Groundwater samples shall be collected and analyzed from each of the specified monitoring wells in accordance with the methods approved by the Department in the Sampling and Analysis Plan. The Department may approve or require alternate sampling locations which are demonstrated to be representative.

5. Schedule of Compliance

The permittee shall comply with the following schedule. Submittals shall comply with Rule 323.2218. All submittals shall be to the Department.

- a) On or before 180 days prior to discharge, the permittee shall submit for review and approval Sampling and Analysis Plans (SAP) pursuant to Rule 2223 for both effluent and groundwater monitoring.
- b) On or before 30 days following completion of construction of wastewater treatment facility, pursuant to Rule 2218(4)(a) the permittee shall submit a certification that a quality control and quality assurance program was utilized and the facilities constructed were built consistent with standard construction practices to comply with the permit and the NREPA. This certification shall be by an engineer licensed under Act 299 of the Public Acts of 1980.

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- c) On or before 45 days following completion of construction of wastewater treatment facility, the permittee shall submit for review and approval an Operations and Maintenance Manual pursuant to Rule 2218(4)(b). A guidance document is available via the Internet at: http://www.michigan.gov/deq/0,1607,7-135-3313_4117-9782--,00.html.
- d) On or before 30 days following the issuance of this permit, the permittee shall submit for review and approval a work plan for the installation of the remaining upgradient and downgradient monitoring wells.
- e) On or before 60 days following approval of the Monitor Well Work Plan, the permittee shall install the monitoring wells.
- f) On or before 90 days following installation of the monitor wells required in Section 4.e of this permit, the permittee shall submit a report of monitor well installation. The report shall contain a work plan for establishment of background groundwater quality in the monitor wells.
- g) On or before before 180 days following installation of the monitor wells required by Section 4.e of this permit, the permittee shall submit monitoring well sampling results which establish background water quality.

6. Operator Certification

The permittee shall have the waste treatment facilities under direct supervision of an operator certified at the appropriate level for the facility certification by the Department, as required by Sections 3110 and 4104 of the NREPA.

7. Facility Operation and Maintenance

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee shall comply with the inspection, operation and maintenance program requirements specified below.

<u>Location</u>	<u>Condition</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Contact Water Basins	Freeboard -2 foot minimum	Weekly	Visual Observation
	Control Structures	Weekly	Visual Observation
	Dike Integrity	Weekly	Visual Observation
	Vegetation Control	Weekly	Visual Observation
	Nuisance Animals	Weekly	Visual Observation
	Odors	Weekly	Olfactory Observation
Rapid Infiltration Beds	Vegetation Control	Weekly	Visual Observation

- a) Contact Water Basin Inspection
These inspections shall include:
(1) the lagoon dikes for vegetative growth, erosion, slumping, animal burrowing or breakthrough;

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- (2) the depth of the water in each cell and the freeboard with a minimum two (2) feet of freeboard being maintained at all times;
 - (3) the control structures and pump stations to assure that valves, gates and alarms are set correctly and properly functioning;
 - (4) the lagoon security fence and warning signs.
- b) Facility Maintenance
- The permittee shall implement a Facility Maintenance Program that incorporates the following management practices unless otherwise authorized by the Department.
- (1) Vegetation shall be maintained at a height not more than six (6) inches above the ground on lagoon dikes.
 - (2) Not more than 10 percent of the water surface shall be covered by floating vegetation and not more than 10 percent of the water perimeter may have emergent rooted aquatic plants.
 - (3) Dike damage caused by erosion, slumping or animal burrowing shall be corrected immediately and steps taken to prevent occurrences in the future.
 - (4) The integrity of the lagoon liner shall be protected. Liner damages shall be corrected immediately and steps taken to prevent future occurrences.
 - (5) A schedule for the inspection and maintenance of the collection system, lift stations, mechanical and electrical systems, transfer stations, and control structures shall be developed and implemented.
- c) Contact Water Basin Drawdown Conditions
- The permittee shall observe the following conditions when drawing down a cell for transfer or discharge unless otherwise authorized by the Department.
- (1) Water discharged shall be removed from the cell at a rate of less than 500 GPM.
 - (2) The permittee shall maintain a minimum of two feet of freeboard in all cells at all times. Upon written notification, the Department may require a minimum of three feet of freeboard for larger systems.
 - (3) The permittee shall maintain a minimum of two feet of water in all cells at all times, except with the approval of the DEQ.

8. Submittal Requirements for Self-Monitoring Data

The permittee shall submit self-monitoring data monthly on the Department's Compliance Monitoring Report (CMR) for each calendar month of the authorized discharge period to:

NMS-CMR-Data Entry-Groundwater
Water Bureau
Michigan Department of Environmental Quality
P.O. Box 30273
Lansing, Michigan, 48909-7773

and

Upper Peninsula District Office
DEQ-Water Bureau
420 5th Street
Gwinn, Michigan 49841

The forms shall be postmarked no later than 30 days following each month of the authorized discharge period(s).

PART I

Alternative Daily Discharge Monitoring Report formats may be used if they provide equivalent reporting details and are approved by the Department.

9. General Conditions

- a) The discharge shall not be, or not be likely to become, injurious to the protected uses of the waters of the state.
- b) The discharge shall not cause runoff to, ponding on, or flooding of adjacent property, shall not cause erosion, and shall not cause nuisance conditions.
- c) The point of discharge shall be located not less than 100 feet inside the boundary of the property where the discharge occurs, unless a lesser distance is specifically authorized in writing by the Department.
- d) The discharge shall not create a facility as defined in Part 201, Environmental Response, of the NREPA.
- e) Thirty days prior to the start of construction of the wastewater treatment facility, the permittee shall provide documentation to the Department that they have legal authority to discharge on state land owned by the Michigan Department of Natural Resources.

10. Other Conditions

- a) **Basis of Design** - The discharge shall be treated in accordance with the approved basis of design pursuant to Rule 2218(2).
- b) **Wastewater Characterization** - The chemical, biological, and physical quality of the influent wastewater shall not be altered such that the treatment system will no longer produce an effluent that is in compliance with the limitations described in Part I, Section 2 of this permit.
- c) **Land Application:**
Rapid Infiltration
 - (1) The system shall consist of two (2) or more cells or absorption areas that can be alternately loaded and rested or consist of one (1) cell or absorption area preceded by an effluent storage or stabilization pond system. If only one (1) cell or absorption area is provided, then the storage or stabilization pond shall be operated on a fill and draw basis and have sufficient capacity to allow intermittent loading of the cell or absorption area.
 - (2) For a system that has more than one (1) cell or absorption area, an individual cell or absorption area of the system shall be capable of being taken out of service without disrupting application to other cells or absorption areas of the system.
 - (3) An appropriate hydraulic loading cycle shall be developed and implemented to maximize long-term infiltration rates and allow for periodic maintenance.
- d) **Notification of Changes in Discharge** – If any chemical listed in Attachment I is detected in the effluent monitoring at concentrations greater than 5 times the Expected Effluent Quality specified in Attachment I, the permittee shall notify the Department, in writing, within 10 days of receiving such analytical results. The Department will evaluate the data and notify the permittee in writing if additional monitoring, treatment or other corrective actions are necessary.
- e) **Boron Notification** - Should boron levels in the effluent or groundwater reach or exceed 285 ug/l, the permittee must notify the department within 24 hours, and within 7 days submit a report indicating the source of the results and describe the steps taken to bring boron levels back into compliance with this permit.

PART I

- f) **Sampling Frequency Reduction** - Pursuant to Rule 2223(1), the Department may modify the effluent or groundwater monitoring parameters or frequency requirements of this permit, or they may be modified upon the request of the permittee with adequate supporting documentation.

11. Discharge Management Plan (DMP)

- a) A land treatment system shall be designed, constructed, and operated as follows:
- (1) The system shall be designed and constructed to prevent surface runoff from either entering or exiting the system.
 - (2) The system shall be designed and constructed to provide even distribution of wastewater during application. A header ditch, where used, shall be designed and constructed to allow for complete drainage after each wastewater loading or shall be lined to prevent seepage.
 - (3) If vegetative cover is utilized and is considered part of the overall treatment system, then the design and construction of the system shall allow for the mechanical harvesting of vegetative cover.
 - (4) The system shall be designed, constructed, and operated to allow an appropriate loading cycle. An appropriate loading cycle allows time between loadings for all of the following:
 - (a) Soil organisms to biologically decompose organic constituents in the wastewater.
 - (b) Organic solids on the soil surface to decompose.
 - (c) The soil to become aerated.
 - (d) Vegetative cover to utilize available nutrients provided through the application of the wastewater.
 - (e) Soil conditions to become unsaturated and aerobic.
- b) The design hydraulic loading or application rate, whether daily, monthly, or annual, shall not be more than one of the following:
- (1) Three percent of the permeability of the most restrictive soil layer within the solum over the area of the discharge when determined by either the cylinder infiltration method or air entry permeameter test method.
 - (2) Seven percent of the permeability of the most restrictive soil layer within the solum over the area of the discharge as determined by the saturated hydraulic specific conductance method.
 - (3) Twelve percent of the permeability of the most restrictive soil layer within the solum over the area of the discharge as determined by the basin infiltration method.
 - (4) If published information is utilized, the discharger shall determine the methodology used to measure the reported hydraulic specific conductance. If the hydraulic specific conductance is given as a range of expected values, then a discharger shall use the minimum value given the most restrictive soil layer within the solum when calculating the hydraulic loading or application rate.
- c) The system shall be designed, constructed, and operated so as to prevent the development of sodic conditions within the solum of the discharge area. Sodic conditions are considered to exist in the solum when the exchangeable sodium percentage, which is the percentage of the cation exchange capacity of a soil occupied by sodium, is more than 15 percent.
- d) All of the following operation and maintenance requirements shall be met:
- (1) Portions of the wastewater distribution system shall be capable of being taken out of service for maintenance and other operational activities and to provide rest to portions of the irrigation area without disrupting applications to other areas of the system.
 - (2) All areas within a system shall be accessible for maintenance equipment.

PART I

- (3) For slow rate and overland flow treatment systems, the pH of the plow layer within the discharge area shall be maintained between 6.0 and 7.5 standard units.
- e) The discharge to a land treatment system shall be limited so that the discharge volume combined with the precipitation from a 10-year frequency, 24-hour duration rainfall event does not overflow the designed discharge area.
- f) If any modifications are made to the management practices or specifications for the land application of wastewater, including but not limited to changes in crops grown, yield goal for those crops, or supplemental fertilization provided by the permittee or a third party, the permittee shall submit a revised DMP on or before November 30 of the year prior to making the proposed change. Based on this submittal, the Department may modify this permit in accordance with applicable rules and laws.

12. Compliance Requirements

Compliance with all applicable requirements set forth in Parts 31 and 41 of the NREPA, and related regulations and rules is required. All instances of noncompliance with concentration limitations of effluent or groundwater shall be reported as follows.

- a) The permittee shall notify the Department of all instances of noncompliance within 24 hours of making a determination that a limit has been exceeded; and shall include all of the following: 1) the name of the substance(s) for which a limit was exceeded; 2) the concentration at which the substance was found; and 3) the location(s) at which the limit was exceeded.
- b) Within 24 hours from the time the permittee becomes aware of the noncompliance, the permittee shall resample the monitoring point at which the limit was exceeded for the substance for which a limit was exceeded.
- c) Within 7 days of resampling, the permittee shall submit a written report that shall include all of the following: 1) the results of the confirmation sampling; 2) an evaluation of the cause for the limit being exceeded and the impact of that event to the groundwater; and 3) a proposal detailing steps taken or to be taken to prevent recurrence.
- d) In accordance with applicable rules, the Department may require additional activities including, but not limited, to the following:
 - (1) Change the monitoring program, including increasing the frequency of effluent monitoring or groundwater sampling, or both.
 - (2) Develop and implement a groundwater monitoring program if one is not in place.
 - (3) If the discharge is in a designated wellhead protection area, assess the affects of the discharge on the public water supply system.
 - (4) Review the operational or treatment procedures, or both, at the facility.
 - (5) Define the extent to which groundwater quality exceeds the applicable criteria that would designate the site as a facility under Part 201.
 - (6) Revise the operational procedures at the facility.
 - (7) Change the design or construction of the wastewater operations at the facility.
 - (8) Initiate an alternative method of waste treatment or disposal.
 - (9) If the standard is established by Rule 2222(5), reduce or eliminate use of the substance.
 - (10) Close the facility or end the discharge that resulted in the applicable standard being exceeded.
 - (11) Remediate contamination to comply with the terms of Part 201, if applicable.

PART I

- e) If the Department determines there is a change in groundwater quality from a normal operating baseline that indicates the concentration of a substance in groundwater may exceed an applicable limit, then the discharger shall take the following actions if required by the Department:
 - (1) Change the monitoring program, including increasing the frequency of effluent sampling or groundwater sampling, or both.
 - (2) Review the operational or treatment procedures, or both, at the facility.

13. Request for Discharge of Water Treatment Additives

In the event a permittee proposes to discharge water treatment additives (WTAs) to groundwater, the permittee shall submit a request to discharge WTAs to the Department for approval. Such requests shall be sent to the Surface Water Assessment Section, Water Bureau, Department of Environmental Quality, P.O. Box 30273, Lansing, Michigan 48909, with a copy to the Department contact listed on the cover page of this permit. Instructions to submit a request electronically may be obtained via the Internet (<http://www.michigan.gov/deq> and on the left side of the screen click on Water, Water Quality Monitoring, and Assessment of Michigan Waters; then click on the Water Treatment Additive List which is under the Information banner). Written approval from the Department to discharge such WTAs at specified levels shall be obtained prior to discharge by the permittee. Failure to obtain approval prior to discharging any WTA is a violation of this permit. Additional monitoring and reporting may be required as a condition for the approval to discharge the WTA. WTAs include such chemicals as herbicides used to kill weeds and grasses as part of lagoon maintenance.

A request to discharge WTAs to groundwater shall include all of the following:

- a) product Information:
 - (1) name of the product;
 - (2) Material Safety Data Sheet;
 - (3) product function (i.e. microbiocide, flocculants, etc.);
 - (4) specific gravity if the product is a liquid ; and
 - (5) annual product use rate (liquids in gallons per year and solids in pounds per year);
- b) ingredient information:
 - (1) name of each ingredient;
 - (2) CAS number for each ingredient; and
 - (3) fractional content by weight for each product;
- c) the monitoring point from which the WTA is to be discharged;
- d) the proposed WTA discharge concentration;
- e) the discharge frequency (i.e., number of hours per day and number of days per year);
- f) the type of removal treatment, if any, that the WTA receives prior to discharge;
- g) relevant mammalian toxicity studies for the product or all of its constituents (if product toxicity data are submitted, the applicant shall provide information showing that the product tested has the same composition as the product listed under Item "a" above. Preferred studies are subchronic or chronic in duration, use the oral route of exposure, examine a wide array of endpoints and identify a no-observable-adverse-effect-level. Applicants are strongly encouraged to provide the preferred data. If preferred data are not available, then the minimum information needed is an oral rat LD50 study. In addition, an environmental fate analysis that predicts the mobility of the product/ingredients and their potential to migrate to groundwater may be provided.

PART I

- h) If the discharge of the WTA to groundwater is within 1,000 feet of a surface water body, the following information shall also be provided:
- (1) a 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.); and
 - (2) the results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2) of the Water Quality Standards.

Prior to submitting the request, the permittee may contact the Surface Water Assessment Section by telephone at 517-335-1180 or via the Internet at the address given above to determine if the Department has the product toxicity data required by Item "g" above. If the Department has the data, the permittee will not need to submit product toxicity data.

14. Definitions

This list of definitions may include terms **not applicable** to this individual permit.

Annual frequency of analysis refers to a calendar year beginning on January 1 and ending on December 31. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Biosolids are the solid, semisolid, or liquid residues generated during the treatment of sanitary sewage or domestic sewage in a treatment works. This includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes and a derivative of the removed scum or solids.

Bulk biosolids means biosolids that are not sold or given away in a bag or other container for application to a lawn or home garden.

By-Pass means any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions of this permit.

Class B Biosolids refers to material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with the Part 24 Rules. Processes include aerobic digestion, composting, anaerobic digestion, lime stabilization and air drying.

Daily Maximum is the maximum concentration of any individual sample taken during any calendar day. If the parameter concentration in any sample is less than the quantification limit, regard that value as zero when calculating the daily concentration.

For pH, report the maximum value of any individual sample taken during the month and the minimum value of any individual sample taken during the month.

Department means the Michigan Department of Environmental Quality.

Detection Level means the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

Flow Proportioned sample is a composite sample with the sample volume proportional to the effluent flow.

Furrow stream is the volume, in gallons per unit time, usually per minute, of wastewater discharged into the furrow.

GPD means gallons per day.

GPY means gallons per year.

Grab sample is a single sample taken at neither a set time nor flow.

MGD means million gallons per day.

Mg/l is a unit of measurement and means milligrams per liter.

Mine Contact Water means mine dewatering water, contact storm water from the main operations area, water from the temporary development rock storage area; truck wash water and water from the crusher operations.

PART I

Monthly Average is the sum of the results of all data obtained in a given month divided by the total number of samples taken.

Monthly frequency of analysis refers to a calendar month. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

POTW is a publicly owned treatment works.

Quantification level means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

Quarterly frequency of analysis refers to a three month period, defined as January through March, April through June, July through September, and October through December. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

Report means there is no limit associated with the individual substance for the medium that is being sampled, that the permittee must only report the result of the laboratory analysis.

Weekly frequency of analysis refers to a calendar week which begins on Sunday and ends on Saturday. When required by this permit, an analytical result, reading, value or observation must be reported for that period if a discharge occurs during that period.

PART II

1. Upset Noncompliance Notification

If a process "upset" (defined as an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee) has occurred, the permittee who wishes to establish the affirmative defense of upset, shall notify the Department by telephone within 24-hours of becoming aware of such conditions; and within five (5) days, provide in writing, the following information:

- a) that an upset occurred and that the permittee can identify the specific cause(s) of the upset;
- b) that the permitted wastewater treatment facility was, at the time, being properly operated; and
- c) that the permittee has specified and taken action on all responsible steps to minimize or correct any adverse impact in the environment resulting from noncompliance with this permit.

In any enforcement proceedings, the permittee, seeking to establish the occurrence of an upset, has the burden of proof.

2. By-Pass Prohibition and Notification

- a) By-Pass Prohibition – By-pass is prohibited unless: 1) by-pass was unavoidable to prevent loss of life, personal injury, or severe property damage; 2) there were no feasible alternatives to the by-pass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass; and 3) the permittee submitted notices as required under b. or c. below.
- b) Notice of Anticipated By-pass - If the permittee knows in advance of the need for a by-pass, it shall submit prior notice to the Department, if possible at least ten (10) days before the date of the by-pass, and provide information about the anticipated by-pass as required by the Department. The Department may approve an anticipated by-pass, after considering its adverse effects, if it will meet the three (3) conditions listed in 12.a. above.
- c) Notice of Unanticipated By-pass - The permittee shall submit notice to the Department of an unanticipated by-pass by calling the Department at the number indicated on the first page of this permit (if the notice is provided after regular working hours, use the following number: 1-800-292-4706) as soon as possible, but no later than 24 hours from the time the permittee becomes aware of the circumstances.
- d) Written Report of By-pass - A written submission shall be provided within five (5) working days of commencing any by-pass to the Department, and at additional times as directed by the Department. The written submission shall contain a description of the by-pass and its cause; the period of by-pass, including exact dates and times, and if the by-pass has not been corrected, the anticipated time it is expected to continue; steps taken or planned to reduce, eliminate, and prevent reoccurrence of the by-pass; and other information as required by the Department.
- e) By-pass Not Exceeding Limitations - The permittee may allow any by-pass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These by-passes are not subject to the provisions of a., b., c., and d., above. This provision does not relieve the permittee of any notification responsibilities under Part II. Item 11 of this permit.
- f) Definitions:
 - (1) By-pass means the intentional diversion of waste streams from any portion of a treatment facility.
 - (2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production.

PART II

3. Start-up Notification

If the permittee will not discharge during the first 60 days following the effective date of this permit, the permittee shall notify the Department within 14 days following the effective date of this permit, and then 60 days prior to the commencement of the discharge.

4. Schedule of Compliance Notification

Within 14 days of every Schedule of Compliance date specified in this permit, the permittee shall submit a written notification to the Department indicating whether or not the particular requirement was accomplished. If the requirement was not accomplished, the notification shall include an explanation of the failure to accomplish the requirement, actions taken or planned by the permittee to correct the situation, and an estimate of when the requirement will be accomplished. If a written report is required to be submitted by a specified date and the permittee accomplishes this, a separate written notification is not required.

5. Notification of Changes in Discharge, Treatment or Facility Operations

If proposing to modify the quantity or effluent characteristics of the discharge or the treatment process for the discharge, the permittee shall notify the Department of the proposed modification prior to its occurrence. Significant modifications require the permittee to submit an application. A permit modification shall be processed in accordance with applicable rules and laws prior to implementation of the modification.

6. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall submit to the Department 30 days prior to the actual transfer of ownership or control a written agreement between the current permittee and the new permittee containing: 1) the legal name and address of the new owner; 2) a specific date for the effective transfer of permit responsibility, coverage and liability; and 3) a certification of the continuity of or any changes in operations, wastewater discharge, or wastewater treatment.

If the new permittee is proposing changes in operations, wastewater discharge, or wastewater treatment, the Department may propose modification of this permit in accordance with applicable laws and rules.

7. Representative Samples

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. Guidance on how to collect representative samples is contained in Guidesheet III, "Characterization of Wastewater", which is available via the Internet at <http://www.deq.state.mi.us/documents/deq-wmd-gwp-P22GuidshtIII.pdf>.

8. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations promulgated pursuant to either SW-846, 3rd edition, September 1986, "Test Methods for the Evaluation of Solid Waste, Physical-Chemical Methods," or Section 304(h) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq), 40 CFR Part 136 - Guidelines Establishing Test Procedures for the Analysis of Pollutants, unless specified otherwise in this permit. Requests to use test procedures not defined here shall be submitted to the Department for review and approval.

The permittee shall periodically calibrate and perform maintenance procedures on all analytical instrumentation at intervals to ensure accuracy of measurements. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

PART II**9. Instrumentation**

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring instrumentation at intervals to ensure accuracy of measurements.

10. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information: 1) the exact place, date, and time of measurement or sampling; 2) the person(s) who performed the measurement or sample collection; 3) the dates the analyses were performed; 4) the person(s) who performed the analyses; 5) the analytical techniques or methods used; 6) the date of and person responsible for equipment calibration; and 7) the results of all required analyses.

11. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Department.

12. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Compliance Monitoring Report. Such increased frequency shall also be indicated.

If the permittee monitors any pollutant not required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the reporting of the values required in the Compliance Monitoring Report.

Monitoring required pursuant to Part 41 of the NREPA or Rule 35 of the Mobile Home Park Commission Act (1987 P.A. 96) for assurance of proper facility operation shall be submitted as required by the Department.

13. Spill Notification

The permittee shall immediately report any release of any polluting material which occurs to the surface waters or groundwater of the state, unless the permittee has determined that the release is not in excess of the threshold reporting quantities specified in the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code), by calling the Department at the number indicated on the first page of this permit, or if the notice is provided after regular working hours call the Department's 24-hour Pollution Emergency Alerting System telephone number, 1-800-292-4706 (calls from out-of-state dial 1-517-373-7660).

Within ten (10) days of the release, the permittee shall submit to the Department a full written explanation as to the cause of the release, the discovery of the release, response (clean-up and/or recovery) measures taken, and preventative measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

14. Facilities Operation

The permittee shall, at all times, properly operate and maintain all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

PART II

15. Power Failures

In order to maintain compliance with the effluent limitations of this permit and prevent unauthorized discharges, the permittee shall either:

- a) provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit; or
- b) upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, the permittee shall halt, reduce or otherwise control production and/or all discharge in order to maintain compliance with the effluent limitations and conditions of this permit.

16. Containment Facilities

The permittee shall provide facilities for containment of any accidental losses of polluting materials in accordance with the requirements of the Part 5 Rules (Rules 324.2001 through 324.2009 of the Michigan Administrative Code). For a Publicly Owned Treatment Work (POTW), these facilities shall be approved under Part 41 of the NREPA.

17. Waste Treatment Residues

Residuals (i.e. solids, sludges, biosolids, filter backwash, scrubber water, ash, grit or other pollutants) removed from or resulting from treatment or control of wastewaters, shall be disposed of in an environmentally compatible manner and according to applicable laws and rules. These laws may include, but are not limited to, the NREPA, Part 31 for protection of water resources, Part 55 for air pollution control, Part 111 for hazardous waste management, Part 115 for solid waste management, Part 121 for liquid industrial wastes, Part 301 for protection of inland lakes and streams, and Part 303 for wetlands protection. Such disposal shall not result in any unlawful pollution of the air, surface waters or groundwater of the state.

18. Treatment System Closure

- a) In the event that discharges from a treatment system are planned to be eliminated, the permittee shall do the following:
 - (1) Eliminate all physical threats associated with discharge related facilities not later than five (5) days after use of the facility has ceased.
 - (2) Not less than 75 days before cessation of discharge related activities, characterize any wastewater, sediments and sludges related to the discharge, pursuant to Rule 2226(4)(a)(i-iii).
- b) Within 30 days of completing the characterization, the discharger shall submit a closure plan to the Department for review and approval that describes how the wastewater, sediments and sludges associated with the discharge will be handled in accordance with Part 31, Part 115, Part 111, or Part 201, as appropriate.
- c) Closure activities must be initiated within 30 days of Department approval of the Closure Plan, and must be completed within one (1) year of approval of the Closure Plan.
- d) If the groundwater exceeds a standard established by the Department that would result in the site qualifying as a facility under Part 201, then the discharger shall comply with the requirements of Part 201.
- e) The Department may require post closure monitoring activities to evaluate the effectiveness of the closure activities. Any wastewater or residual disposal inconsistent with the approved plan shall be considered a violation of this permit. After proper closure of the treatment system, this permit may be terminated.

PART II

- f) The discharger must certify completion of the approved closure plan. Certification shall be by a qualified person described as follows:
- (1) An engineer licensed under Act No. 299 of the Public Acts of 1980, as amended, being §339.101 et seq. Of the Michigan Compiled Laws, and known as the occupational code.
 - (2) A professional geologist certified by the American Institute of Professional Geologists, 7828 Vance Drive, Suite 103, Arvada, Colorado 80003.
 - (3) A professional hydrologist certified by the American Institute of Hydrology, 2499 Rice Street, Suite 135, St. Paul, Minnesota 55113.
 - (4) A groundwater professional certified by the National Ground Water Association, Association of Groundwater Scientists and Engineers Division, 601 Dempsey Road, Westerville, Ohio 43081.
 - (5) Another groundwater professional certified by an organization approved by the Department.

19. Right of Entry

The permittee shall allow the Department or any agent appointed by the Department, upon the presentation of credentials:

- a) to enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and
- b) at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect process facilities, treatment works, monitoring methods and equipment regulated or required under this permit; and to sample any effluent discharge, discharge of pollutants, and groundwater monitoring wells and soils associated with the discharge.

20. Availability of Reports

Except for data determined to be confidential under Rule 323.2128 of the Michigan Administrative Code, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Sections 3112, 3115, 4106 and 4110 of the NREPA.

PART III
DISCHARGE PROHIBITIONS

1. Discharge to the Surface Waters

This permit does not authorize any direct discharge to the surface waters. The permittee is responsible for obtaining any permits required by federal or state laws or local ordinances.

2. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation.

3. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits or approvals as may be required by law.

4. Duty to Comply

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

It is the duty of the permittee to comply with all the terms and conditions of this permit. Any noncompliance with the Effluent Limitations, Conditions, or terms of this permit constitutes a violation of the NREPA and constitutes grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of an application for permit renewal.

5. Civil and Criminal Liability

Except as provided in permit conditions on "Bypass" (Part II.12.), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond the permittee's control, such as accidents, equipment breakdowns, or labor disputes.

**ATTACHMENT I
KENNECOTT EAGLE MINE
GROUNDWATER DISCHARGE PERMIT NO. GW1810162**

Expected Effluent Quality*

PARAMETER	EXPECTED EFFLUENT QUALITY (µg/L)
Aluminum	1.9
Antimony	1
Barium	1.4
Beryllium	0.05
Chloride	44000
Chromium	0.5
Cobalt	9.2
Fluoride	41
Iron	3.2
Lead	0.5
Lithium	4.2
Manganese	2.4
Molybdenum	1.1
Nickel	4.9
Nitrogen, Ammonia	2328
Nitrate	30
Phosphorus	0.8
Potassium	1200
Sodium	30000
Strontium	95
Sulfate	1700
Thallium	0.4
Vanadium	0.3
Zinc	18

The values listed in Attachment I, Expected Effluent Quality, are all below discharge standards specified in Rule 2222 of the Part 22 Rules. The values are the effluent limits that the permittee has indicated can be achieved by the treatment process approved pursuant to the Basis of Design required in Rule 2218(2).

**ATTACHMENT II
KENNECOTT EAGLE MINE
GROUNDWATER DISCHARGE PERMIT NO. GW1810162**

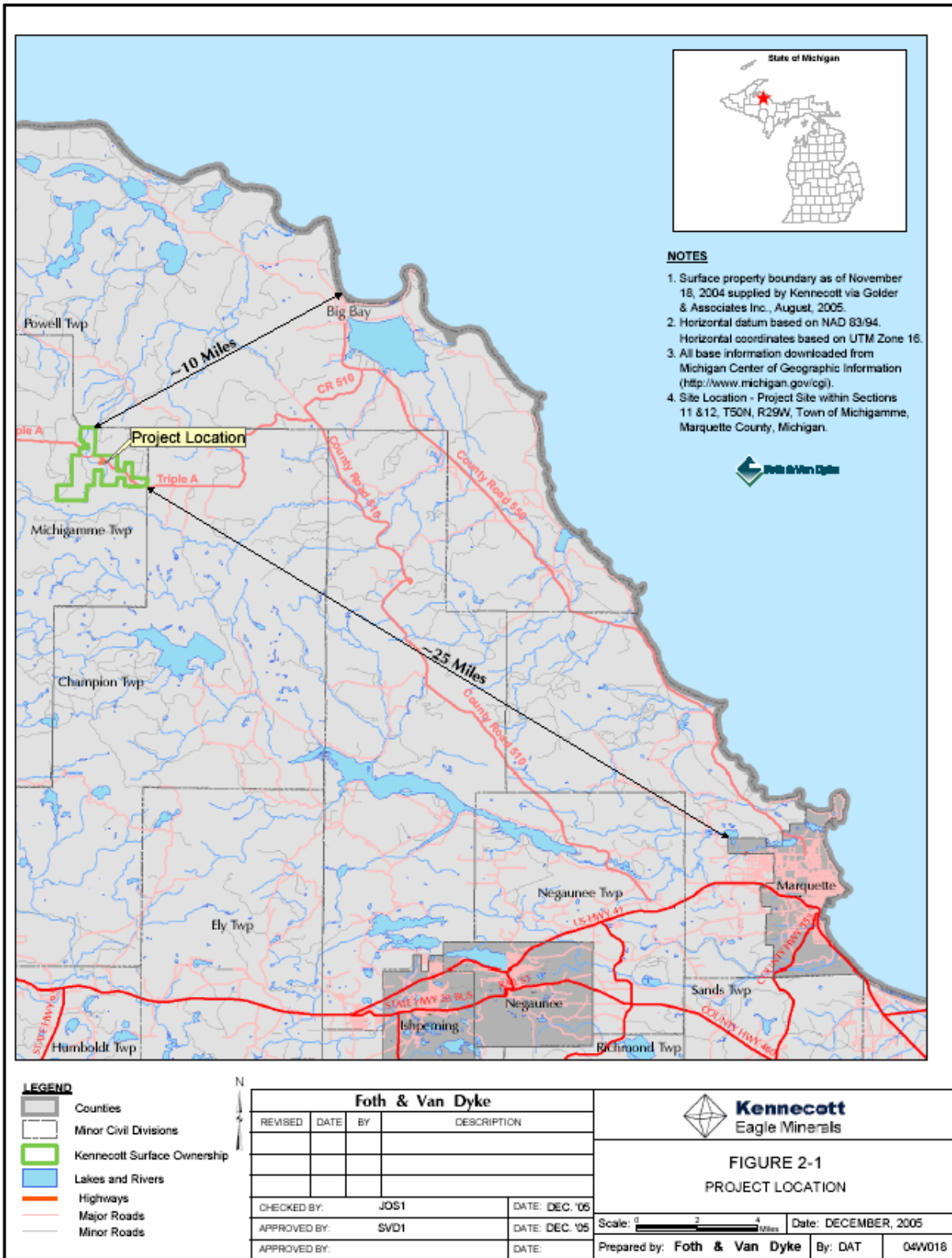
Maximum Method Quantification Levels* for comparison with Michigan's Water Quality Standards**

Pollutant	Analytical Methods USEPA/SW-846	QL (µg/L)
Antimony	200.8/6020	1
Arsenic	200.8/6020	1
Barium	200.8/6020	5
Beryllium	200.8/6020	1
Boron	200.8/6020	20
Cadmium	200.8/6020	0.2
Chromium	200.8/6020	1
Copper	200.8/6020	1
Cobalt	200.8/6020	15
Lead	200.8/6020	1
Lithium	200.8/6020	8
Manganese	200.8/6020	5
Molybdenum	200.8/6020	25
Nickel	200.8/6020	2
Selenium	200.8/6020	1
Silver	200.8/6020	0.2
Strontium	200.8/6020	5
Thallium	200.8/6020	2
Vanadium	200.8/6020	2
Zinc	200.8/6020	10

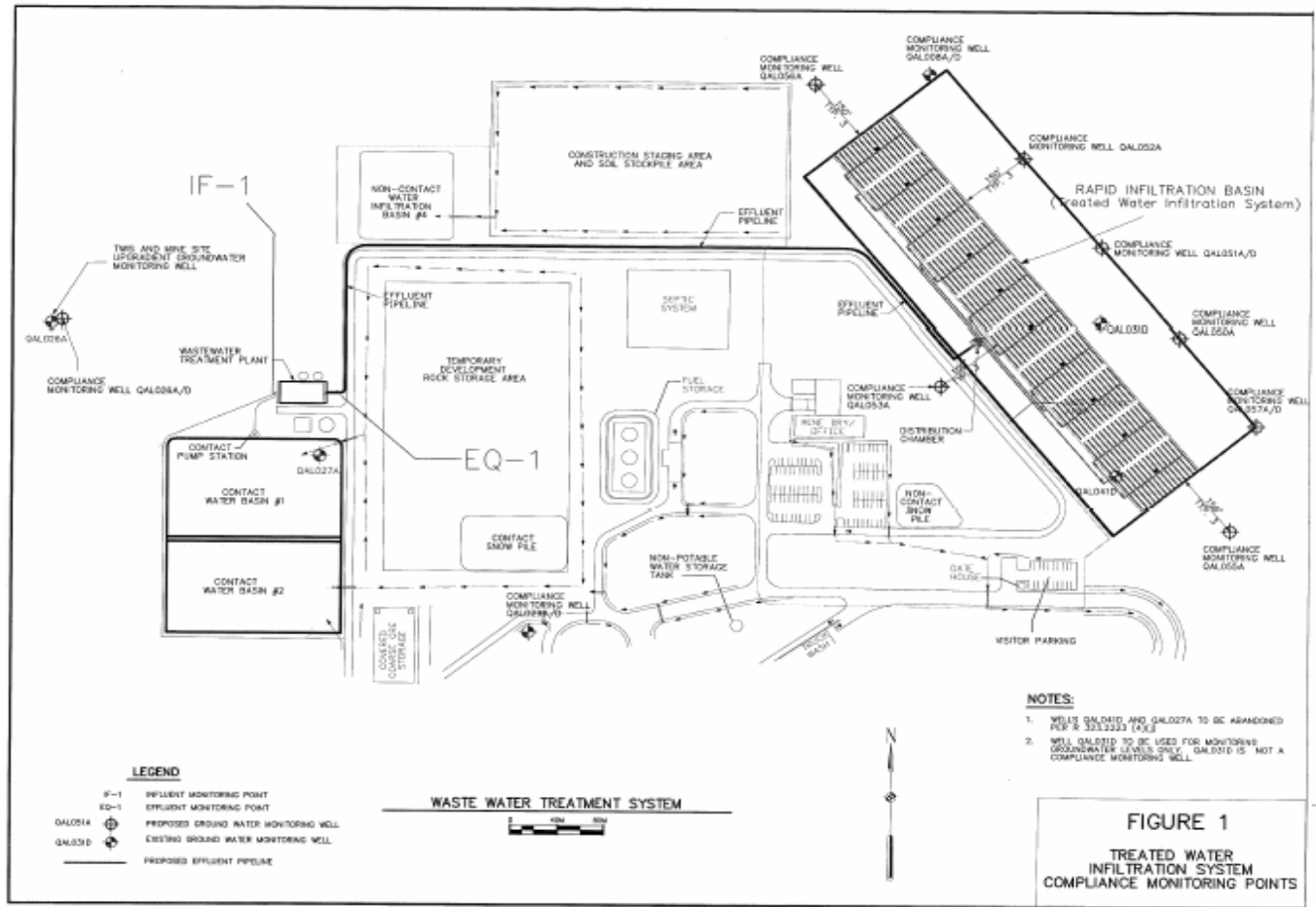
* **Quantification level** means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

****Water Quality Standards** means the Part 4 Water Quality Standards promulgated pursuant to Part 31 of Act No. 451 of the Public Acts of 1994, as amended, being Rules 323.1041 through 323.1117 of the Michigan Administrative Code.

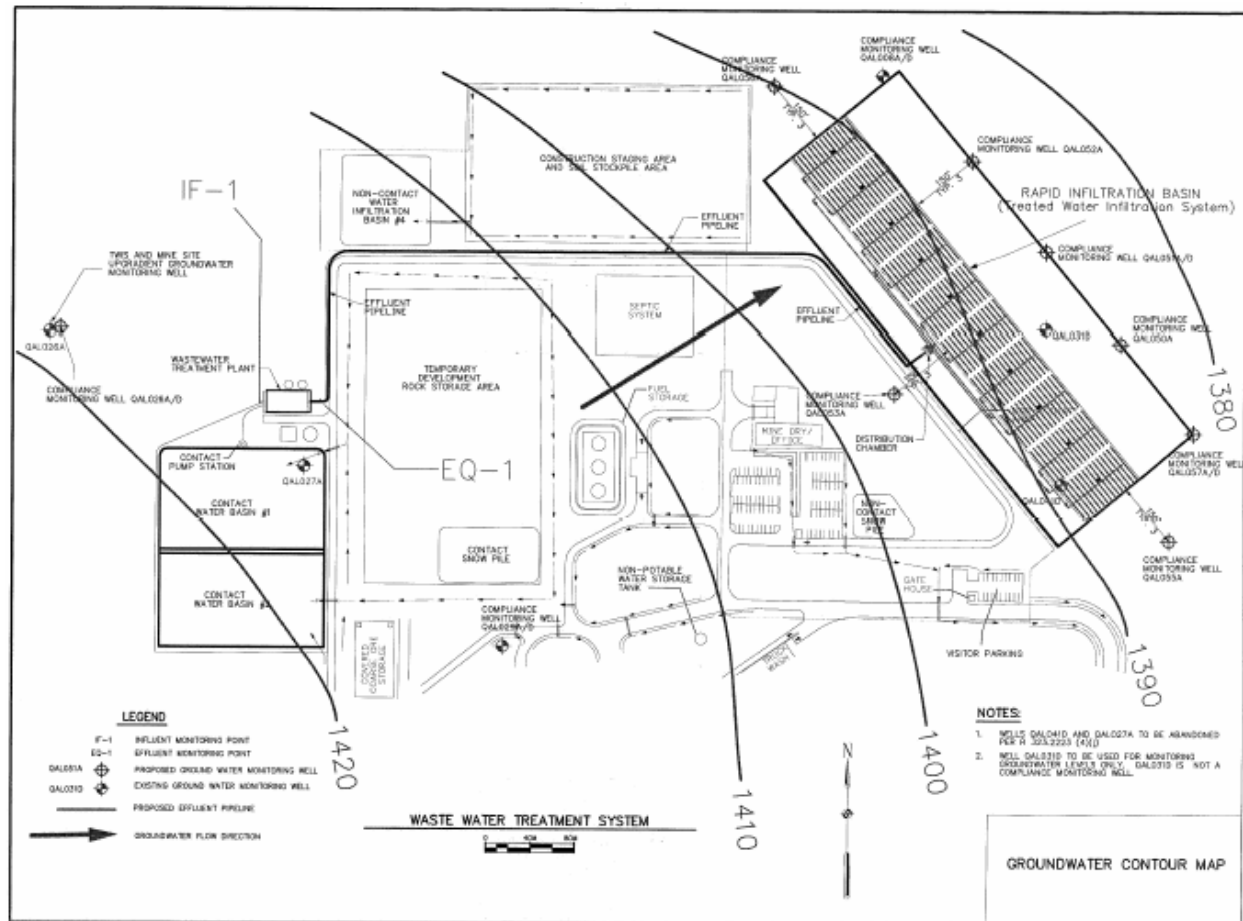
ATTACHMENT III SITE MAP



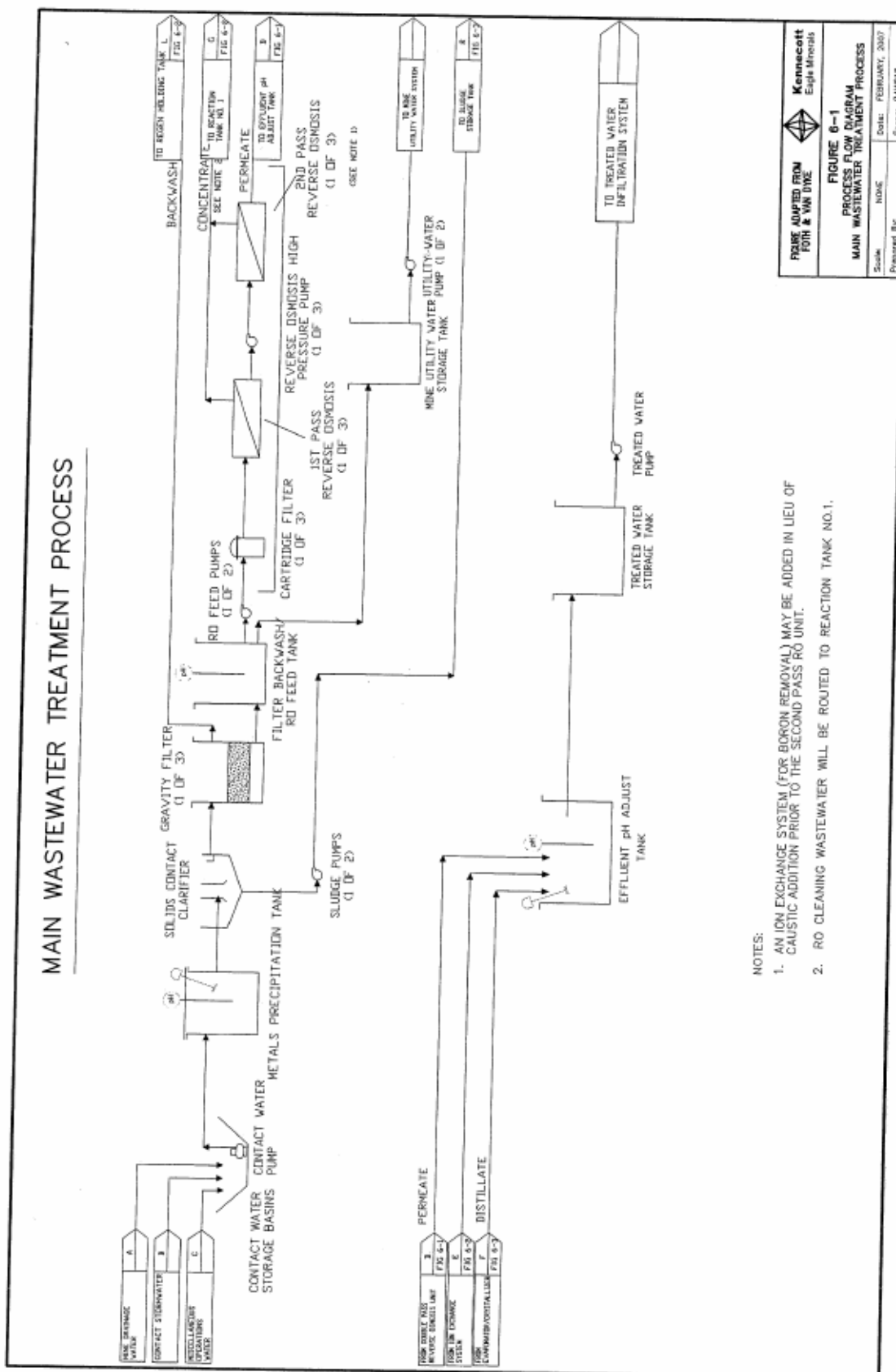
ATTACHMENT IV SITE PLAN



ATTACHMENT V GROUNDWATER CONTOUR MAP



ATTACHMENT VI-A FLOW DIAGRAM



ATTACHMENT VI-B FLOW DIAGRAM

